(PUE) factor, (6) space saving and efficient in its space requirements allowing higher density capabilities (i.e., more kilowatts per square foot), (7) scalability, (8) efficiency in mechanical cooling, (9) multi-use characteristics for single deployment, large indoor warehousing, or large outdoor applications, such as data center farms, (10) energy-efficiency in the containment of hot and cold aisles, (11) flexibility in its use of different types of cooling systems, and (12) capability of being modified to meet data center tier requirements for redundancy.

[0007] There is disclosed a modular data center. In one example, the modular data center includes a first cooling circuit that has a primary cooling device and a plurality of modular data pods. Each modular data pod includes a plurality of servers, a heat exchange member coupled to the first cooling circuit, and a second cooling circuit coupled to the heat exchange member. The second cooling circuit is configured to cool the plurality of servers. The second cooling circuit includes a secondary cooling device configured to cool fluid flowing through the second cooling circuit.

[0008] There is disclosed a modular data pod. The modular data pod includes a plurality of servers, at least one heat exchange member and a second cooling circuit. The at least one heat exchange member is configured to couple to a first cooling circuit which includes a free-cooling device. The second cooling circuit is coupled to the heat exchange member. Further, the second cooling circuit is in thermal communication with the plurality of servers. The second cooling circuit includes a mechanical cooling device.

[0009] According to an aspect of the present invention, there is provided a modular data center includes a central cooling system and a plurality of modular data pods. Each modular data pod includes a plurality of servers, a heat exchange assembly coupled to the central cooling system, and a distributed cooling system coupled to the heat exchange assembly. The heat exchange assembly is configured to cool the plurality of servers. The central cooling system is a free-cooling system and the distributed cooling system is a mechanical cooling system. The distributed cooling system is configured to cool a portion of a heat load of the modular data pod that exceeds the cooling capacity of the free-cooling system.

[0010] According to a further aspect of the present invention, there is provided a

modular data pod includes an enclosure, a plurality of computer racks arranged within the enclosure. The enclosure includes wall members contiguously joined to one another along at least one edge of each wall member. The wall members are formed in the shape of a polygon. The enclosure also

CLAIMS

1. A modular data center, comprising:

a central cooling system;

a plurality of modular data pods, each modular data pod comprising:

a plurality of servers;

a heat exchange assembly coupled to the central cooling system, the heat exchange assembly configured to cool the plurality of servers; and

a distributed cooling system coupled to the heat exchange assembly,

wherein the central cooling system is a free-cooling system and the distributed cooling system is a mechanical cooling system, and

wherein the distributed cooling system is configured to cool a portion of a heat load of the modular data pod that exceeds the cooling capacity of the free-cooling system.

2. The modular data center according to claim 1, wherein the heat exchange assembly includes a heat exchange member and a cooling circuit in thermal communication with the heat exchange member, the cooling circuit further in thermal communication with the plurality of servers.